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colossal nerve fibres given off from regularly arranged giant ganglion cells. In both the supporting tissue is of ectodermal origin.

FISHES.—Messrs. Jenkins and Everman discovered a new species of the genus *Chologaster* this summer in the outlet to Lake Drummond, in the dismal swamp of Virginia. The discovery is especially interesting, as the genus is presumably the representative of the ancestors of the blind-fishes, *Amblyopsis* and *Typhlichthys*. Only their species of the genus—*C. cornutus*, *C. papilliferus* and *C. agassizii* were known before, and these were represented by but few specimens. Jenkins and Evermann were fortunate in obtaining a considerable amount of material of the new species.

MAMMALS.—Dr. Frederick Tuckerman describes the histological structure of the taste-organs of the bat, *Vespertilio subulatus*, in Vol. II. of the *Journal of Morphology*.

Some years ago the greenish color of certain of the sloths was attributed to the presence of an algæ upon the hair. Recently Madam Weber von Bosse has described two genera and three species of these parasitic algæ. The new genus *Trichophilus* is green, the other, *Cyanoderma*, with its two species is violet. From 150,000 to 200,000 individuals of these algæ may occur on a single hair.

ENTOMOLOGY.¹

SCUDDER'S BUTTERFLIES OF NEW ENGLAND.²—The long-looked-for work by Mr. Scudder, on the butterflies of New England, is about to appear. We are in receipt of a prospectus which includes sample pages and plates. Judging from this the work will surpass in fulness of detail and magnificence of illustration anything of the kind yet published; and the scope of the work is an unusually broad one, including accounts of the structure of these insects in all stages of life, their variation, habits, manners, life-history, and their enemies; also frequent discussions of problems suggested by their study.

¹ This department is edited by Professor J. H. Comstock, Cornell University, Ithaca, N. Y., to whom communications, books for notice, etc., should be sent.

² The butterflies of the Eastern United States and Canada with special reference to New England, by Samuel Hubbard Scudder, Cambridge; published by the author, 1888. Twelve monthly parts, \$5.00 per part, or \$50.00 for the whole work if paid for before Jan. 1, 1889.

This work was at first intended to embrace only the butterflies known to occur in New England or its immediate confines ; but it has been extended so as to include in its descriptions and histories some account of all the butterflies of North America, east of the Mississippi, excepting such as are found only in the unsettled parts of Canada, or south of Kentucky and Virginia.

Not only every species, but also every genus, tribe, sub-family, and family, are described and discussed with a fulness never before attempted, except in individual cases. The descriptions include in each instance not merely the perfect form, but when possible, the eggs, the caterpillar at birth and in the succeeding stages, and the chrysalis, together with the distribution, life-history, habits, and environments of the insects. A great accumulation of new facts and observations are embodied. Analytical tables applicable to every stage are used wherever possible.

Over seventy distinct excursions, distributed throughout the work, discuss separately all the interesting problems which arise in the study of butterflies (whether of distribution, structure, history, or relation to the outer world), in themselves forming a complete treatise on the life of these insects. Judging by the fragment of the excursion devoted to dimorphism and polymorphism which is given in the prospectus, this part of the work will be of the highest interest to those who study entomology in a scholarly way, whatever their speciality.

Every page of this treatise bears evidence of the wonderful amount of pains-taking labor devoted to its preparation. For twenty years the author has been at work upon it ; and for the last eight years it has received his undivided attention. No one else has brought to the study of this group of insects more scholarly attainments, nor has achieved such magnificent results. We trust that the work will receive the recognition that it deserves.

VISION OF CATERPILLARS AND ADULT INSECTS.—Prof. F. Plateau continues his researches on the powers of vision by an investigation of caterpillars and of the frontal ocelli of adult insects.¹

(1) He made a series of experiments and observations on the caterpillars of fifteen species of Lepidoptera, and obtained the following results : (a) The eyes of caterpillars have a more important rôle than that of simply distinguishing between light and darkness. They really see, though badly. (b) The distance of distinct vision is short, and usually about a centimetre. (c) At greater distances caterpillars can perceive large masses, but do not discern their nature. (d) They only perceive the movements of bodies within the limits of distinct vision. (e) Tactile hairs present on the anterior segments of many forms are of much sensory importance.

¹ Bull. Acad. R. Sci. Belg. xv. (1888), pp. 28-91.

(f) The antennæ are much used in testing the path and surrounding objects.

(2) In the next chapter Prof. Plateau discusses the function of the frontal ocelli of adult insects. He gives an historical summary of past researches, describes the manifold conditions of his own observations and experiments, submits tabulated results of his investigations of different forms, and formulates the following conclusions: (a) Diurnal winged insects, Hymenoptera, Diptera and Lepidoptera, when blinded by covering the entire eyes with black or by cutting all of the optic nerves, rise to a great height in the air when liberated. (b) When the compound eyes are suppressed, but the frontal ocelli left, in Hymenoptera, Odonata, and Diptera, the insects behave exactly as if the ocelli also had been suppressed. When freed, they rise vertically as before. In a chamber lighted from one side they behave as if they were totally blind. (c) But if the frontal ocelli be alone suppressed, the above insects behave as if they had lost nothing. (d) In diurnal insects equipped with compound eyes the ocelli count for almost nothing. They only afford the animals very feeble perceptions which they do not know how to use.

The author concludes his memoir with the following suggestions, which he describes as "plausible hypotheses," supported by a certain number of observed facts: (1) Diurnal insects, in which all of the eyes have been suppressed, still enjoy dermatoptic perceptions. (2) They are almost reduced to the same limitations if the ocelli are left at their disposal. (3) The dermatoptic perceptions are the primary cause of the ascending flight of liberated blinded insects. (4) The frontal ocelli serve neither for the perception of movements in adjacent objects, nor for the perception of light in relative obscure media. (5) The simple eyes, which the author has shown to function in an imperfect fashion in most Myriapods, in many Arachnids, and caterpillars, have entirely lost their utility in the great majority of insects equipped with compound eyes. (*Jour. Roy. Micr. Soc.*, June, 1888.)

LIFE OF TOWNEND GLOVER.—A biographical sketch and an account of the writings of the late Towend Glover, the first United States Entomologist, written by Mr. Charles R. Dodge, has just been published by the Department of Agriculture at Washington.¹ Mr. Dodge was for a long time the assistant of Mr. Glover, and was one of his most intimate friends during the closing year of his life. He is, therefore, well fitted to perform this office and has done it in a very satisfactory manner. The work is illustrated by a portrait of Mr. Glover, copies of two of his earlier plates, and by several of his humorous caricatures. Numerous anecdotes are given

¹ U. S. Dep. of Agri., Div. of Ent., Bull. No. 18.

illustrating the peculiarities and eccentricities of this remarkable man. Following the biographical sketch is a chapter giving the history of Glover's great work entitled *Illustrations of North American Entomology*. There is also a short chapter on the Glover Museum, and a list of Mr. Glover's entomological writings; this includes sixty-four titles.

MONOGRAPHS OF NORTH AMERICAN SPIDERS.—We have received during the past month two monographs of North American Spiders. The larger of the two is of the family *Attidæ* and is by George W. and Elizabeth G. Peckham. It is reprinted from the *Transactions of the Wisconsin Academy of Sciences, Art and Letters*, Vol. VII. It comprises 104 pages and is illustrated by six plates. An analytical key to the genera is given, and the specific descriptions are evidently very carefully prepared.

The smaller monograph is of the family *Ciniflonidæ* and is by J. H. Emerton. It is reprinted from the *Transactions of the Connecticut Academy*, Vol. VII. It comprises sixteen pages and is illustrated by three beautiful plates.

THE BEE-KEEPERS' GUIDE.—A new edition of this excellent manual of the apiary by Prof. A. J. Cook has just appeared. The work has been wholly re-written and revised, 150 pages and more than thirty illustrations being added. The greatest additions are in the chapters pertaining to the natural history of the honey-bee. We are glad to note also an improvement in the paper and press work. This is undoubtedly our best manual on the subject and it should be in the hands of every American bee-keeper.

ON PLATYPSYLLUS.—There appeared in the *Scientific American* Supplement of June 2, 1888, an important paper by Prof. Riley on the scientific relations of *Platysyllus* as determined by the larva. The paper is based upon the study of larvæ collected for Prof. Riley by Mr. Lawrence Brunner in Nebraska. Three figures of the larvæ are given, and one of the adult. The conclusion drawn by the author is that this insect pertains to the order Coleoptera.

BIBLIOGRAPHY OF NORTH AMERICAN INSECTS.—Bulletin No. 19, of the Division of Entomology of the United States Department of Agriculture, is entitled *An Enumeration of the published Synopses, Catalogues, and Lists of North American Insects*. This is a very useful pamphlet, the scope of which is indicated by the title.